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## SEQUENCE LISTING

&lt;110&gt; Scharenberg, Andrew

&lt;120&gt; CHARACTERIZATION OF THE SOC/CRAC CALCIUM CHANNEL PROTEIN FAMILY

&lt;130&gt; B0662/7026/ERP/KA

&lt;140&gt; US 09/869,486

&lt;141&gt; 1999-12-20

&lt;150&gt; US 60/114,220

&lt;151&gt; 1998-12-30

&lt;150&gt; US 60/120,018

&lt;151&gt; 1999-01-29

&lt;150&gt; US 60/140,415

&lt;151&gt; 1999-06-22

&lt;150&gt; PCT/US99/29996

&lt;151&gt; 1999-12-20

&lt;160&gt; 32

&lt;170&gt; PatentIn version 3.0

&lt;210&gt; 1

&lt;211&gt; 1212

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1

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&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

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&lt;223&gt; a, or c, or g, or t

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&lt;223&gt; a, or c, or g, or t

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&lt;223&gt; a, or c, or g, or t

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&lt;212&gt; PRT

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&lt;213&gt; Homo sapiens

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&lt;221&gt; UNSURE

&lt;222&gt; (54)..(54)

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 Ala Val Ser Pro Pro Glu Leu Arg Gln Arg Leu His Gly Val Glu Leu  
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 Leu Lys Ile Phe Asn Lys Asn Gln Lys Leu Gly Ser Ser Ser Thr Ser  
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 Ile Pro His Leu Ser Ser Xaa Xaa Xaa Lys Phe Phe Xaa Ser Thr Pro  
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 Ser Gln Pro Ser Cys Lys Ser His Leu Glu Thr Gly Thr Lys Asp Gln  
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1

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35         40         45
Pro Phe Gly Asn Asn Asp Lys Gln Glu Ser Leu Ser Ser Trp Ile Pro
50         55         60
Glu Asn Ile Lys Lys Lys Glu Cys Val Tyr Phe Val Glu Ser Ser Lys
65         70         75         80
Leu Ser Asp Ala Gly Lys Val Val Cys Gln Cys Gly Tyr Thr His Glu
85         90         95
Gln His Leu Glu Glu Ala Thr Lys Pro His Thr Phe Gln Gly Thr Gln
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Trp Asp Pro Lys Lys His Val Gln Glu Met Pro Thr Asp Ala Phe Gly
115        120        125
Asp Ile Val Phe Thr Gly Leu Ser Gln Lys Val Lys Lys Tyr Val Arg
130        135        140
Val Ser Gln Asp Thr Pro Ser Ser Val Ile Tyr His Leu Met Thr Gln
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His Trp Gly Leu Asp Val Pro Asn Leu Leu Ile Ser Val Thr Gly Gly
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Ala Lys Asn Phe Asn Met Lys Pro Arg Leu Lys Ser Ile Phe Arg Arg
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Gly Leu Val Lys Val Ala Gln Thr Thr Gly Ala Trp Ile Ile Thr Gly
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Gly Ser His Thr Gly Val Met Lys Gln Val Gly Glu Ala Val Arg Asp
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Leu Glu Lys Phe Ile Ser Glu Gln Thr Lys Glu Arg Gly Gly Val Ala
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Thr	Val	Phe	Arg	Glu	Gly	Lys	Asp	Gly	Gln	Gln	Asp	Val	Asp	Val	Ala	420	425	430
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Pro	Ser	Asp	Leu	His	Pro	Thr	Met	Thr	Ala	Ala	Leu	Ile	Ser	Asn	Lys	485	490	495
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Ser	Cys	Leu	Phe	His	Ser	Lys	Leu	Gln	Lys	Val	Leu	Val	Glu	Asp	Pro	530	535	540
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785					790					795				800
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Pro	Ile	Arg	Met	His	Ser	Pro	Ser	Phe	Ser	Phe	Ser	Leu	Ile	Thr	Ser
			20					25					30		
Leu	Phe	Phe	Thr	Gln	Phe	Phe	Met	Phe	Gln	Leu	Ser	Ser	Met	Ala	Tyr
			35				40					45			
Phe	Phe	Leu	Thr	Leu	Ile	Ala	Gly	Val	Thr	His	Phe	Tyr	Phe	Pro	Glu
			50			55					60				
Lys	Leu	Leu	Gly	Lys	Ser	Glu	Asn	Leu	Asp	His	Arg	Tyr	Gln	Ser	Ser
65					70				75					80	
Glu	Gln	Lys	Val	Leu	Ile	Glu	Trp	Thr	Glu	Asn	Lys	Ala	Val	Ala	Glu
			85				90						95		
Ser	Leu	Arg	Ala	Asn	Ser	Val	Thr	Val	Glu	Glu	Asn	Glu	Ser	Glu	Arg
			100					105					110		
Glu	Thr	Glu	Thr	Gln	Thr	Lys	Arg	Arg	Arg	Lys	Lys	Gln	Arg	Ser	Thr
			115				120					125			
Ser	Ser	Asp	Lys	Ala	Pro	Leu	Asn	Ser	Ala	Pro	Arg	His	Val	Gln	Lys

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130		135		140
Phe Asp Trp Lys Asp	Met Leu His Leu Ala Asp	Ile Ser Gly Arg Lys		
145	150	155	160	
Arg Gly Asn Ser Thr	Thr Ser His Ser Gly	His Ala Thr Arg Ala Gly		
	165	170	175	
Ser Leu Lys Gly Lys	Asn Trp Ile Glu Cys	Arg Leu Lys Met Arg Gln		
	180	185	190	
Cys Ser Tyr Phe Val	Pro Ser Gln Arg Phe	Ser Glu Arg Cys Gly Cys		
	195	200	205	
Gly Lys Glu Arg Ser	Lys His Thr Glu Glu	Val Leu Glu Arg Ser Gln		
	210	215	220	
Asn Lys Asn His Pro	Leu Asn His Leu Thr	Leu Pro Gly Ile His Glu		
225	230	235	240	
Val Asp Thr Thr Asp	Ala Asp Ala Asp Asp	Asn Glu Val Asn Leu Thr		
	245	250	255	
Pro Gly Arg Trp Ser	Ile Gln Ser His Thr	Glu Ile Val Pro Thr Asp		
	260	265	270	
Ala Tyr Gly Asn Ile	Val Phe Glu Gly Thr	Ala His His Ala Gln Tyr		
	275	280	285	
Ala Arg Ile Ser Phe	Asp Ser Asp Pro Arg	Asp Ile Val His Leu Met		
	290	295	300	
Met Lys Val Trp Lys	Leu Lys Pro Pro Lys	Leu Ile Ile Thr Ile Asn		
305	310	315	320	
Gly Gly Leu Thr Lys	Phe Asp Leu Gln Pro	Lys Leu Ala Arg Thr Phe		
	325	330	335	
Arg Lys Gly Ile Met	Lys Ile Ala Lys Ser	Thr Asp Ala Trp Ile Ile		
	340	345	350	
Thr Ser Gly Leu Asp	Glu Gly Val Val Lys	His Leu Asp Ser Ala Leu		
	355	360	365	
His Ala Leu Glu Phe	Trp Ser Phe Gly Leu	Phe Trp Val Ile Gln Leu		
	370	375	380	
Asp Val Leu Leu Ala	His Ser Met Phe Ile	Pro Arg Gly Ser Leu Phe		
385	390	395	400	
Asp His Gly Asn His	Thr Ser Lys Asn His	Val Val Ala Ile Gly Ile		
	405	410	415	
Ala Ser Trp Gly Met	Leu Lys Gln Arg Ser	Arg Phe Val Gly Lys Asp		
	420	425	430	
Ser Thr Val Thr Tyr	Ala Thr Asn Val Phe	Asn Asn Thr Arg Leu Lys		
	435	440	445	
Glu Leu Asn Asp Asn	His Ser Tyr Phe Leu	Phe Ser Asp Asn Gly Thr		
	450	455	460	
Val Asn Arg Tyr Gly	Ala Glu Ile Ile Met	Arg Lys Arg Leu Glu Ala		
465	470	475	480	
Tyr Leu Ala Gln Gly	Asp Lys Lys Arg Ser	Ala Ile Pro Leu Val Cys		
	485	490	495	
Val Val Leu Glu Gly	Gly Ala Phe Thr Ile	Lys Met Val His Asp Tyr		
	500	505	510	
Val Thr Thr Ile Pro	Arg Ile Pro Val Ile	Val Cys Asp Gly Ser Gly		
	515	520	525	
Arg Ala Ala Asp Ile	Leu Ala Phe Ala His	Gln Ala Val Ser Gln Asn		
	530	535	540	
Gly Phe Leu Ser Asp	Asn Ile Arg Asn Gln	Leu Val Asn Ile Val Arg		
545	550	555	560	
Arg Ile Phe Gly Tyr	Asp Pro Lys Thr Ala	Gln Lys Leu Ile Lys Gln		
	565	570	575	
Ile Val Glu Cys Ser	Thr Asn Lys Ser Leu	Met Thr Ile Phe Arg Leu		
	580	585	590	
Gly Glu Ser Arg Glu	Asp Leu Asp His Val	Ile Met Ser Cys Leu		
	595	600	605	

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Leu	Lys	Gly	Gln	Asn	Leu	Ser	Pro	Pro	Glu	Gln	Leu	Gln	Leu	Ala	Leu
610						615					620				
Ala	Trp	Asn	Arg	Ala	Asp	Ile	Ala	Arg	Thr	Glu	Ile	Phe	Ala	Asn	Gly
625					630					635					640
Thr	Glu	Trp	Thr	Thr	Gln	Asp	Leu	His	Asn	Ala	Met	Ile	Glu	Ala	Leu
				645					650					655	
Ser	Asn	Asp	Arg	Ile	Asp	Phe	Val	His	Leu	Leu	Leu	Glu	Asn	Gly	Val
			660					665					670		
Ser	Met	Gln	Lys	Phe	Leu	Thr	Tyr	Gly	Arg	Leu	Glu	His	Leu	Tyr	Asn
		675					680					685			
Thr	Asp	Lys	Gly	Pro	Gln	Asn	Thr	Leu	Arg	Thr	Asn	Leu	Leu	Val	Asp
	690					695					700				
Ser	Lys	His	His	Ile	Lys	Leu	Val	Glu	Val	Gly	Arg	Leu	Val	Glu	Asn
705					710					715					720
Leu	Met	Gly	Asn	Leu	Tyr	Lys	Ser	Asn	Tyr	Thr	Lys	Glu	Glu	Phe	Lys
			725						730					735	
Asn	Gln	Tyr	Phe	Leu	Phe	Asn	Asn	Arg	Lys	Gln	Phe	Gly	Lys	Arg	Val
		740						745					750		
His	Ser	Asn	Ser	Asn	Gly	Gly	Arg	Asn	Asp	Val	Ile	Gly	Pro	Ser	Gly
		755					760					765			
Asp	Ala	Gly	Arg	Glu	Arg	Met	Ser	Ser	Met	Gln	Ile	Ser	Leu	Ile	Asn
	770					775					780				
Asn	Ala	Arg	Asn	Ser	Ile	Ile	Ser	Leu	Phe	Asn	Gly	Gly	Gly	Arg	Lys
785					790					795					800
Arg	Glu	Ser	Asp	Asp	Glu	Asp	Asp	Phe	Ser	Asn	Leu	Glu	Glu	Glu	Ala
			805					810						815	
Asn	Met	Asp	Phe	Thr	Phe	Arg	Tyr	Pro	Tyr	Ser	Asp	Leu	Met	Ile	Trp
			820					825					830		
Ala	Val	Leu	Thr	Lys	Arg	Gln	Lys	Met	Ala	Lys	Leu	Met	Trp	Thr	His
		835					840					845			
Gly	Glu	Glu	Gly	Met	Ala	Lys	Ala	Leu	Val	Ala	Ser	Arg	Leu	Tyr	Val
	850					855					860				
Ser	Leu	Ala	Lys	Thr	Ala	Ser	Leu	Ala	Thr	Gly	Glu	Ile	Gly	Met	Ser
865					870					875					880
Gln	Asp	Phe	Thr	Glu	Phe	Ser	Asp	Glu	Phe	Ser	Glu	Leu	Ala	Val	Glu
			885					890						895	
Val	Leu	Glu	Tyr	Cys	Thr	Lys	His	Gly	Arg	Asp	Gln	Thr	Leu	Arg	Leu
			900					905					910		
Leu	Thr	Cys	Glu	Leu	Ala	Asn	Trp	Gly	Asp	Glu	Thr	Cys	Leu	Ser	Leu
		915					920					925			
Ala	Ala	Asn	Asn	Gly	His	Arg	Lys	Phe	Leu	Ala	His	Pro	Cys	Cys	Gln
		930				935					940				
Met	Leu	Leu	Ser	Asp	Leu	Trp	Gln	Gly	Gly	Leu	Leu	Met	Lys	Asn	Asn
945					950					955					960
Gln	Asn	Ser	Lys	Val	Leu	Thr	Cys	Leu	Ala	Ala	Pro	Pro	Leu	Ile	Phe
			965					970						975	
Leu	Leu	Gly	Phe	Lys	Thr	Lys	Glu	Gln	Leu	Met	Leu	Gln	Pro	Lys	Thr
			980				985						990		
Ala	Ala	Glu	His	Asp	Glu	Glu	Met	Ser	Asp	Ser	Glu	Met	Asn	Ser	Ala
		995					1000						1005		
Glu	Asp	Thr	Asp	Thr	Ser	Ser	Asp	Ser	Ser	Ser	Asp	Ser	Asp	Asp	
	1010					1015						1020			
Ser	Asp	Glu	Glu	Asp	Ala	Lys	Leu	Arg	Ala	Gln	Ser	Leu	Ser	Ala	
	1025					1030						1035			
Asp	Gln	Pro	Leu	Ser	Ile	His	Arg	Leu	Val	Arg	Asp	Lys	Leu	Asn	
	1040					1045						1050			
Phe	Ser	Glu	Lys	Lys	Lys	Pro	Asp	Met	Gly	Ile	Ser	Arg	Ile	Val	
	1055					1060						1065			
Val	Ala	Pro	Pro	Ile	Val	Thr	Gly	Arg	Asn	Arg	Ala	Arg	Thr	Met	

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1070	Ser	Ile	Lys	Lys	Ser	Lys	Lys	Asn	Val	Ile	Lys	Pro	Pro	Ala	Cys
1085	Leu	Lys	Ile	Glu	Thr	Ser	Asp	Asp	Asp	Glu	Gln	Glu	Gln	Lys	Lys
1100	Ala	Thr	Glu	Met	Cys	Lys	Ser	Thr	Phe	Phe	Asp	Phe	Phe	Phe	Asp
1115	Phe	Pro	Tyr	Ile	Asn	Arg	Thr	Gly	Lys	Arg	Gly	Ser	Val	Ala	Val
1130	Ala	Met	Asn	His	Asp	Asp	Met	Tyr	Ile	Asp	Pro	Ser	Glu	Glu	Leu
1145	Asp	Thr	Gln	Thr	Arg	Gln	Lys	Ser	Ser	Arg	Glu	Phe	Ser	Ser	Ser
1160	Arg	Asn	Val	Thr	Val	Gln	Val	Tyr	Thr	Gln	Arg	Pro	Leu	Ser	Trp
1175	Lys	Lys	Lys	Ile	Met	Glu	Phe	Tyr	Lys	Ala	Pro	Ile	Thr	Thr	Tyr
1190	Trp	Leu	Trp	Phe	Phe	Ala	Phe	Ile	Trp	Phe	Leu	Ile	Leu	Leu	Thr
1205	Tyr	Asn	Leu	Leu	Val	Lys	Thr	Gln	Arg	Ile	Ala	Ser	Trp	Ser	Glu
1220	Trp	Tyr	Val	Phe	Ala	Tyr	Ile	Phe	Val	Trp	Thr	Leu	Glu	Ile	Gly
1235	Arg	Lys	Val	Val	Ser	Thr	Ile	Met	Met	Asp	Thr	Ser	Lys	Pro	Val
1250	Leu	Lys	Gln	Leu	Arg	Val	Phe	Phe	Phe	Gln	Tyr	Arg	Asn	Gly	Leu
1265	Leu	Ala	Phe	Gly	Leu	Leu	Thr	Tyr	Leu	Ile	Ala	Tyr	Phe	Ile	Arg
1280	Leu	Ser	Pro	Thr	Thr	Lys	Thr	Leu	Gly	Arg	Ile	Leu	Ile	Ile	Cys
1295	Asn	Ser	Val	Ile	Trp	Ser	Leu	Lys	Leu	Val	Asp	Tyr	Leu	Ser	Val
1310	Gln	Gln	Gly	Leu	Gly	Pro	Tyr	Ile	Asn	Ile	Val	Ala	Glu	Met	Ile
1325	Pro	Thr	Met	Ile	Pro	Leu	Cys	Val	Leu	Val	Phe	Ile	Thr	Leu	Tyr
1340	Ala	Phe	Gly	Leu	Leu	Arg	Gln	Ser	Ile	Thr	Tyr	Pro	Tyr	Glu	Asp
1355	Trp	His	Trp	Ile	Leu	Val	Arg	Asn	Ile	Phe	Leu	Gln	Pro	Tyr	Phe
1370	Met	Leu	Tyr	Gly	Glu	Val	Tyr	Ala	Ala	Glu	Ile	Asp	Thr	Cys	Gly
1385	Asp	Glu	Ile	Trp	Gln	Thr	His	Glu	Asp	Glu	Asn	Ile	Pro	Ile	Ser
1400	Met	Leu	Asn	Val	Thr	His	Glu	Thr	Cys	Val	Pro	Gly	Tyr	Trp	Ile
1415	Ala	Pro	Val	Gly	Leu	Thr	Val	Phe	Met	Leu	Ala	Thr	Asn	Val	Leu
1430	Leu	Met	Asn	Val	Met	Val	Ala	Gly	Cys	Thr	Tyr	Ile	Phe	Glu	Lys
1445	His	Ile	Gln	Ser	Thr	Arg	Glu	Ile	Phe	Leu	Phe	Glu	Arg	Tyr	Gly
1460	Gln	Val	Met	Glu	Tyr	Glu	Ser	Thr	Pro	Trp	Leu	Pro	Pro	Pro	Phe
1475	Thr	Ile	Ile	Tyr	His	Val	Ile	Trp	Leu	Phe	Lys	Leu	Ile	Lys	Ser
1490	Ser	Ser	Arg	Met	Phe	Glu	Arg	Lys	Asn	Leu	Phe	Asp	Gln	Ser	Leu

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1505	1510	1515
Lys Leu Phe Leu Ser Pro Asp Glu Met Glu Lys Val His Thr Phe		
1520	1525	1530
Glu Glu Glu Ser Val Glu Asp Met Lys Arg Glu Thr Glu Lys Lys		
1535	1540	1545
Asn Leu Ser Ser Asn Asp Glu Arg Ile His Arg Thr Ala Glu Arg		
1550	1555	1560
Thr Asp Ala Ile Leu Asn Arg Val Ser His Leu Thr Gln Leu Glu		
1565	1570	1575
Phe Thr Leu Lys Glu Glu Ile Arg Glu Leu Glu His Lys Met Lys		
1580	1585	1590
Asn Met Asp Ser Arg His Lys Glu Gln Met Asn Leu Met Leu Asp		
1595	1600	1605
Met Asn Lys Lys Leu Gly Lys Phe Ile Ser Gly Lys Tyr Lys Arg		
1610	1615	1620
Gly Ser Phe Gly Gly Ser Gly Ser Asp Gly Gly Gly Gly Ser Ser		
1625	1630	1635
Asp Asn Ser Lys Leu Glu Pro Asn Asn Ser Val Pro Met Ile Thr		
1640	1645	1650
Val Asp Gly Pro Ser Pro Ile Gly Ser Arg Arg Thr Ser Gly Gln		
1655	1660	1665
Tyr Leu Lys Arg Asp Ser Leu Gln Ala Lys Lys Lys Ile Thr Glu		
1670	1675	1680
Asn Arg Arg Ser Ser Leu Glu Gln Pro Lys Ile Pro Ser Ile Gln		
1685	1690	1695
Phe Asn Leu Met Glu Asp Gln Asp Glu Ser Ala Ala Glu Ser Ala		
1700	1705	1710
Thr Glu Glu Val Ser Ile Ser Ile Pro Val Pro Gln Met Arg Val		
1715	1720	1725
Arg Gln Val Thr Glu Ser Asp Lys Ser Asp Leu Ser Glu Asp Asp		
1730	1735	1740
Leu Ile Thr Arg Glu Asp Ala Pro Pro Thr Ser Ile Asn Leu Pro		
1745	1750	1755
Arg Gly Pro Arg Arg His Ala Leu Tyr Ser Thr Ile Ala Asp Ala		
1760	1765	1770
Ile Glu Thr Glu Asp Asp Phe Tyr Ala Asp Ser Pro Val Pro Met		
1775	1780	1785
Pro Met Thr Pro Val Gln Pro Ala Asp Gly Ser Phe Phe Gly Glu		
1790	1795	1800
Asn Asp Ser Arg Tyr Gln Arg Asp Asp Ser Asp Tyr Glu		
1805	1810	1815

&lt;210&gt; 14

&lt;211&gt; 1387

&lt;212&gt; PRT

&lt;213&gt; Caenorhabditis elegans

&lt;400&gt; 14

Met Arg Lys Ser Arg Arg Val Arg Lys Leu Val Arg His Ala Ser Leu	
1	5 10 15
Ile Glu Asn Ile Arg His Arg Thr Ser Ser Phe Leu Arg Leu Leu Asn	
	20 25 30
Ala Pro Arg Asn Ser Met Cys Asn Ala Asn Thr Val His Ser Ile Ser	
	35 40 45
Ser Phe Arg Ser Asp His Leu Ser Arg Lys Ser Thr His Lys Phe Leu	
	50 55 60
Asp Asn Pro Asn Leu Phe Ala Ile Glu Leu Thr Glu Lys Leu Ser Pro	
65	70 75 80
Pro Trp Ile Glu Asn Thr Phe Glu Lys Arg Glu Cys Ile Arg Phe Ala	

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				85				90					95				
Ala	Leu	Pro	Lys	Asp	Pro	Glu	Arg	Cys	Gly	Cys	Gly	Arg	Pro	Leu	Ser		
			100					105					110				
Ala	His	Thr	Pro	Ala	Ser	Thr	Phe	Phe	Ser	Thr	Leu	Pro	Val	His	Leu		
		115					120					125					
Leu	Glu	Lys	Glu	Gln	Gln	Thr	Trp	Thr	Ile	Ala	Asn	Asn	Thr	Gln	Thr		
	130					135					140						
Ser	Thr	Thr	Asp	Ala	Phe	Gly	Thr	Ile	Val	Phe	Gln	Gly	Gly	Ala	His		
145				150						155					160		
Ala	His	Lys	Ala	Gln	Tyr	Val	Arg	Leu	Ser	Tyr	Asp	Ser	Glu	Pro	Leu		
			165					170						175			
Asp	Val	Met	Tyr	Leu	Met	Glu	Lys	Val	Trp	Gly	Leu	Glu	Ala	Pro	Arg		
		180						185					190				
Leu	Val	Ile	Thr	Val	His	Gly	Gly	Met	Ser	Asn	Phe	Glu	Leu	Glu	Glu		
	195					200					205						
Arg	Leu	Gly	Arg	Leu	Phe	Arg	Lys	Gly	Met	Leu	Lys	Ala	Ala	Gln	Thr		
	210				215						220						
Thr	Gly	Ala	Trp	Ile	Ile	Thr	Ser	Gly	Leu	Asp	Ser	Gly	Val	Val	Arg		
225				230						235					240		
His	Val	Ala	Lys	Ala	Leu	Asp	Glu	Ala	Gly	Ile	Ser	Ala	Arg	Met	Arg		
			245					250						255			
Ser	Gln	Ile	Val	Thr	Ile	Gly	Ile	Ala	Pro	Trp	Gly	Val	Ile	Lys	Arg		
	260					265						270					
Lys	Glu	Arg	Leu	Ile	Arg	Gln	Asn	Glu	His	Val	Tyr	Tyr	Asp	Val	His		
	275					280					285						
Ser	Leu	Ser	Val	Asn	Ala	Asn	Val	Gly	Ile	Leu	Asn	Asp	Arg	His	Ser		
	290			295				300									
Tyr	Phe	Leu	Leu	Ala	Asp	Asn	Gly	Thr	Val	Gly	Arg	Phe	Gly	Ala	Asp		
305				310				315							320		
Leu	His	Leu	Arg	Gln	Asn	Leu	Glu	Asn	His	Ile	Ala	Thr	Phe	Gly	Cys		
			325					330						335			
Asn	Gly	Arg	Lys	Val	Pro	Val	Val	Cys	Thr	Leu	Leu	Glu	Gly	Gly	Ile		
	340					345						350					
Ser	Ser	Ile	Asn	Ala	Ile	His	Asp	Tyr	Val	Thr	Met	Lys	Pro	Asp	Ile		
	355					360					365						
Pro	Ala	Ile	Val	Cys	Asp	Gly	Ser	Gly	Arg	Ala	Ala	Asp	Ile	Ile	Ser		
	370					375					380						
Phe	Ala	Ala	Arg	Tyr	Ile	Asn	Ser	Asp	Gly	Thr	Phe	Ala	Ala	Glu	Val		
385				390						395					400		
Gly	Glu	Lys	Leu	Arg	Asn	Leu	Ile	Lys	Met	Val	Phe	Pro	Glu	Thr	Asp		
			405					410						415			
Gln	Glu	Glu	Met	Phe	Arg	Lys	Ile	Thr	Glu	Cys	Val	Ile	Arg	Asp	Asp		
	420					425							430				
Leu	Leu	Arg	Ile	Phe	Arg	Tyr	Gly	Gln	Glu	Glu	Glu	Glu	Asp	Val	Asp		
	435					440						445					
Phe	Val	Ile	Leu	Ser	Thr	Val	Leu	Gln	Lys	Gln	Asn	Leu	Pro	Pro	Asp		
	450					455					460						
Glu	Gln	Leu	Ala	Leu	Thr	Leu	Ser	Trp	Asn	Arg	Val	Asp	Leu	Ala	Lys		
465				470						475					480		
Ser	Cys	Leu	Phe	Ser	Asn	Gly	Arg	Lys	Trp	Ser	Ser	Asp	Val	Leu	Glu		
			485					490						495			
Lys	Ala	Met	Asn	Asp	Ala	Leu	Tyr	Trp	Asp	Arg	Val	Asp	Phe	Val	Glu		
	500					505						510					
Cys	Leu	Leu	Glu	Asn	Gly	Val	Ser	Met	Lys	Asn	Phe	Leu	Ser	Ile	Asn		
	515					520						525					
Arg	Leu	Glu	Asn	Leu	Tyr	Asn	Met	Asp	Asp	Ile	Asn	Ser	Ala	His	Ser		
	530					535					540						
Val	Arg	Asn	Trp	Met	Glu	Asn	Phe	Asp	Ser	Met	Asp	Pro	His	Thr	Tyr		
545				550						555					560		

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Leu	Thr	Ile	Pro	Met	Ile	Gly	Gln	Val	Val	Glu	Lys	Leu	Met	Gly	Asn
				565					570					575	
Ala	Phe	Gln	Leu	Tyr	Tyr	Thr	Ser	Arg	Ser	Phe	Lys	Gly	Lys	Tyr	Asp
			580					585					590		
Arg	Tyr	Lys	Arg	Ile	Asn	Gln	Ser	Ser	Tyr	Phe	His	Arg	Lys	Arg	Lys
		595					600					605			
Ile	Val	Gln	Lys	Glu	Leu	Phe	Lys	Lys	Lys	Ser	Asp	Asp	Gln	Ile	Asn
	610					615					620				
Asp	Asn	Glu	Glu	Glu	Asp	Phe	Ser	Phe	Ala	Tyr	Pro	Phe	Asn	Asp	Leu
625					630					635					640
Leu	Ile	Trp	Ala	Val	Leu	Thr	Ser	Arg	His	Gly	Met	Ala	Glu	Cys	Met
			645						650					655	
Trp	Val	His	Gly	Glu	Asp	Ala	Met	Ala	Lys	Cys	Leu	Leu	Ala	Ile	Arg
			660					665					670		
Leu	Tyr	Lys	Ala	Thr	Ala	Lys	Ile	Ala	Glu	Asp	Glu	Tyr	Leu	Asp	Val
		675					680						685		
Glu	Glu	Ala	Lys	Arg	Leu	Phe	Asp	Asn	Ala	Val	Lys	Cys	Arg	Glu	Asp
	690					695					700				
Ala	Ile	Glu	Leu	Leu	Asp	Gln	Cys	Tyr	Arg	Ala	Asp	His	Asp	Arg	Thr
705					710					715					720
Leu	Arg	Leu	Leu	Arg	Met	Glu	Leu	Pro	His	Trp	Gly	Asn	Asn	Asn	Cys
			725						730					735	
Leu	Ser	Leu	Ala	Val	Leu	Ala	Asn	Thr	Lys	Thr	Phe	Leu	Ala	His	Pro
			740					745					750		
Cys	Cys	Gln	Ile	Leu	Leu	Ala	Glu	Leu	Trp	His	Gly	Ser	Leu	Lys	Val
		755					760					765			
Arg	Ser	Gly	Ser	Asn	Val	Arg	Val	Leu	Thr	Ala	Leu	Ile	Cys	Pro	Pro
	770					775					780				
Ala	Ile	Leu	Phe	Met	Ala	Tyr	Lys	Pro	Lys	His	Ser	Lys	Thr	Ala	Arg
785					790					795					800
Leu	Leu	Ser	Glu	Glu	Thr	Pro	Glu	Gln	Leu	Pro	Tyr	Pro	Arg	Glu	Ser
			805						810					815	
Ile	Thr	Ser	Thr	Thr	Ser	Asn	Arg	Tyr	Arg	Tyr	Ser	Lys	Gly	Pro	Glu
			820					825					830		
Glu	Gln	Lys	Glu	Thr	Leu	Leu	Glu	Lys	Gly	Ser	Tyr	Thr	Lys	Lys	Val
		835					840						845		
Thr	Ile	Ile	Ser	Ser	Arg	Lys	Asn	Ser	Gly	Val	Ala	Ser	Val	Tyr	Gly
	850					855					860				
Ser	Ala	Ser	Ser	Met	Met	Phe	Lys	Arg	Glu	Pro	Gln	Leu	Asn	Lys	Phe
865					870					875					880
Glu	Arg	Phe	Arg	Ala	Phe	Tyr	Ser	Ser	Pro	Ile	Thr	Lys	Phe	Trp	Ser
			885						890					895	
Trp	Cys	Ile	Ala	Phe	Leu	Ile	Phe	Leu	Thr	Thr	Gln	Thr	Cys	Ile	Leu
		900						905					910		
Leu	Leu	Glu	Thr	Ser	Leu	Lys	Pro	Ser	Lys	Tyr	Glu	Trp	Ile	Thr	Phe
		915					920					925			
Ile	Tyr	Thr	Val	Thr	Leu	Ser	Val	Glu	His	Ile	Arg	Lys	Leu	Met	Thr
	930					935					940				
Ser	Glu	Gly	Ser	Arg	Ile	Asn	Glu	Lys	Val	Lys	Val	Phe	Tyr	Ala	Lys
945					950					955					960
Trp	Tyr	Asn	Ile	Trp	Thr	Ser	Ala	Ala	Leu	Leu	Phe	Phe	Leu	Val	Gly
		965						970						975	
Tyr	Gly	Phe	Arg	Leu	Val	Pro	Met	Tyr	Arg	His	Ser	Trp	Gly	Arg	Val
		980					985						990		
Leu	Leu	Ser	Phe	Ser	Asn	Val	Leu	Phe	Tyr	Met	Lys	Ile	Phe	Glu	Tyr
		995					1000					1005			
Leu	Ser	Val	His	Pro	Leu	Leu	Gly	Pro	Tyr	Ile	Gln	Met	Ala	Ala	
	1010					1015					1020				
Lys	Met	Val	Trp	Ser	Met	Cys	Tyr	Ile	Cys	Val	Leu	Leu	Leu	Val	



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1025	1030	1035
Pro Leu Met Ala Phe Gly Val	Asn Arg Gln Ala Leu	Thr Glu Pro
1040	1045	1050
Asn Val Lys Asp Trp His Trp	Leu Leu Val Arg Asn	Ile Phe Tyr
1055	1060	1065
Lys Pro Tyr Phe Met Leu Tyr	Gly Glu Val Tyr Ala	Gly Glu Ile
1070	1075	1080
Asp Thr Cys Gly Asp Glu Gly	Ile Arg Cys Phe Pro	Gly Tyr Phe
1085	1090	1095
Ile Pro Pro Leu Leu Met Val	Ile Phe Leu Leu Val	Ala Asn Ile
1100	1105	1110
Leu Leu Leu Asn Leu Leu Ile	Ala Ile Phe Asn Asn	Ile Tyr Asn
1115	1120	1125
Asp Ser Ile Glu Lys Ser Lys	Glu Ile Trp Leu Phe	Gln Arg Tyr
1130	1135	1140
Gln Gln Leu Met Glu Tyr His	Asp Ser Pro Phe Leu	Pro Pro Pro
1145	1150	1155
Phe Ser Ile Phe Ala His Val	Tyr His Phe Ile Asp	Tyr Leu Tyr
1160	1165	1170
Asn Leu Arg Arg Pro Asp Thr	Lys Arg Phe Arg Ser	Glu His Ser
1175	1180	1185
Ile Lys Leu Ser Val Thr Glu	Asp Glu Met Lys Arg	Ile Gln Asp
1190	1195	1200
Phe Glu Glu Asp Cys Ile Asp	Thr Leu Thr Arg Ile	Arg Lys Leu
1205	1210	1215
Lys Leu Asn Thr Lys Glu Pro	Leu Ser Val Thr Asp	Leu Thr Glu
1220	1225	1230
Leu Thr Cys Gln Arg Val His	Asp Leu Met Gln Glu	Asn Phe Leu
1235	1240	1245
Leu Lys Ser Arg Val Tyr Asp	Ile Glu Thr Lys Ile	Asp His Ile
1250	1255	1260
Ser Asn Ser Ser Asp Glu Val	Val Gln Ile Leu Lys	Asn Lys Lys
1265	1270	1275
Leu Ser Gln Asn Phe Ala Ala	Ser Ser Leu Ser Leu	Pro Asp Thr
1280	1285	1290
Ser Ile Glu Val Pro Lys Ile	Thr Lys Thr Leu Ile	Asp Cys His
1295	1300	1305
Leu Ser Pro Val Ser Ile Glu	Asp Arg Leu Ala Thr	Arg Ser Pro
1310	1315	1320
Leu Leu Ala Asn Leu Gln Arg	Asp His Thr Leu Arg	Lys Leu Pro
1325	1330	1335
Thr Trp Glu Thr Ser Thr Ala	Ser Thr Ser Ser Phe	Glu Phe Val
1340	1345	1350
Phe Tyr Phe Thr Arg His Glu	Gly Asn Glu Asn Lys	Tyr Glu Phe
1355	1360	1365
Lys Lys Leu Glu Lys Gly Gly	Phe Trp Arg Asn Asn	Tyr Val Ile
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Ser Trp Arg Leu		
1385		

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 <212> PRT  
 <213> Caenorhabditis elegans

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 Trp Cys Thr Met Glu Ser Asp Glu Leu Gly Val Thr Arg Tyr Leu Gln

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Ser	Lys	Gly	Gly	Asp	Gln	Val	Pro	Pro	Thr	Ser	Thr	Thr	Thr	Gly	Gly
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Ala	Gly	Gly	Asp	Gly	Asn	Ala	Val	Pro	Thr	Thr	Ser	Gln	Ala	Gln	Ala
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Gln	Thr	Phe	Asn	Ser	Gly	Arg	Gln	Thr	Thr	Gly	Met	Ser	Ser	Gly	Asp
65					70					75				80	
Arg	Leu	Asn	Glu	Asp	Val	Ser	Ala	Thr	Ala	Asn	Ser	Ala	Gln	Leu	Val
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Leu	Pro	Thr	Pro	Leu	Phe	Asn	Gln	Met	Arg	Phe	Thr	Glu	Ser	Asn	Met
			100					105					110		
Ser	Leu	Asn	Arg	His	Asn	Trp	Val	Arg	Glu	Thr	Phe	Thr	Arg	Arg	Glu
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Cys	Ser	Arg	Phe	Ile	Ala	Ser	Ser	Arg	Asp	Leu	His	Lys	Cys	Gly	Cys
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Gly	Arg	Thr	Arg	Asp	Ala	His	Arg	Asn	Ile	Pro	Glu	Leu	Thr	Ser	Glu
145					150					155					160
Phe	Leu	Arg	Gln	Lys	Arg	Ser	Val	Ala	Ala	Leu	Glu	Gln	Gln	Arg	Ser
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Ile	Ser	Asn	Val	Asn	Asp	Asp	Ile	Asn	Thr	Gln	Asn	Met	Tyr	Thr	Lys
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Arg	Gly	Ala	Asn	Glu	Lys	Trp	Ser	Leu	Arg	Lys	His	Thr	Val	Ser	Leu
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Ala	Thr	Asn	Ala	Phe	Gly	Gln	Val	Glu	Phe	Gln	Gly	Gly	Pro	His	Pro
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Tyr	Lys	Ala	Gln	Tyr	Val	Arg	Val	Asn	Phe	Asp	Thr	Glu	Pro	Ala	Tyr
225					230					235					240
Ile	Met	Ser	Leu	Phe	Glu	His	Val	Trp	Gln	Ile	Ser	Pro	Pro	Arg	Leu
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Gly	Ala	Trp	Ile	Ile	Thr	Ser	Gly	Cys	Asp	Thr	Gly	Val	Val	Lys	His
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Val	Cys	Ile	Gly	Ile	Ala	Pro	Trp	Gly	Leu	Leu	Lys	Lys	Arg	Glu	Asp
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Phe	Ile	Gly	Gln	Asp	Lys	Thr	Val	Pro	Tyr	Tyr	Pro	Ser	Ser	Ser	Lys
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Gly	Arg	Phe	Thr	Gly	Leu	Asn	Asn	Arg	His	Ser	Tyr	Phe	Leu	Leu	Val
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Arg	Leu	Glu	Met	Tyr	Ile	Ser	Gln	Lys	Gln	Lys	Ile	Phe	Gly	Gly	Thr
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Arg	Ser	Val	Pro	Val	Val	Cys	Val	Val	Leu	Glu	Gly	Gly	Ser	Cys	Thr
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		435					440					445			
His	Gln	Asn	Val	Thr	Glu	Asp	Gly	Leu	Leu	Pro	Asp	Asp	Ile	Arg	Arg
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Gln	Val	Leu	Leu	Leu	Val	Glu	Thr	Thr	Phe	Gly	Cys	Ser	Glu	Ala	Ala
465					470					475					480
Ala	His	Arg	Leu	Leu	His	Glu	Leu	Thr	Val	Cys	Ala	Gln	His	Lys	Asn
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Leu	Leu	Thr	Ile	Phe	Arg	Leu	Gly	Glu	Gln	Gly	Glu	His	Asp	Val	Asp		
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His	Ala	Ile	Leu	Thr	Ala	Leu	Leu	Lys	Gly	Gln	Asn	Leu	Ser	Ala	Ala		
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Asp	Gln	Leu	Ala	Leu	Ala	Leu	Ala	Trp	Asn	Arg	Val	Asp	Ile	Ala	Arg		
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Asn	Ala	Met	Met	Glu	Ala	Leu	Ile	His	Asp	Arg	Val	Asp	Phe	Val	Arg		
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Phe	Tyr	Ile	Val	Arg	Asp	Val	Val	Arg	Val	Arg	Gln	Gly	Tyr	Arg	Phe		
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Lys	Leu	Pro	Asp	Ile	Gly	Leu	Val	Ile	Glu	Lys	Leu	Met	Gly	Asn	Ser		
625					630					635					640		
Tyr	Gln	Cys	Ser	Tyr	Thr	Thr	Ser	Glu	Phe	Arg	Asp	Lys	Tyr	Lys	Gln		
			645						650					655			
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Thr	Glu	Gly	Met	Gly	Gly	Val	Gly	Gly	Gly	Ser	Ser	Val	Ala	Gly	Val		
	690					695					700						
Phe	Gly	Asn	Ser	Phe	Gly	Asn	Gln	Asp	Pro	Pro	Leu	Asp	Pro	His	Val		
705					710					715					720		
Asn	Arg	Ser	Ala	Leu	Ser	Gly	Ser	Arg	Ala	Leu	Ser	Asn	His	Ile	Leu		
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Trp	Arg	Ser	Ala	Phe	Arg	Gly	Asn	Phe	Pro	Ala	Asn	Pro	Met	Arg	Pro		
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Pro	Asn	Leu	Gly	Asp	Ser	Arg	Asp	Cys	Gly	Ser	Glu	Phe	Asp	Glu	Glu		
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Arg	Tyr	Pro	Tyr	Ser	Glu	Leu	Met	Ile	Trp	Ala	Val	Leu	Thr	Lys	Arg		
785					790					795					800		
Gln	Asp	Met	Ala	Met	Cys	Met	Trp	Gln	His	Gly	Glu	Glu	Ala	Met	Ala		
			805						810					815			
Lys	Ala	Leu	Val	Ala	Cys	Arg	Leu	Tyr	Lys	Ser	Leu	Ala	Thr	Glu	Ala		
			820					825					830				
Ala	Glu	Asp	Tyr	Leu	Glu	Val	Glu	Ile	Cys	Glu	Glu	Leu	Lys	Lys	Tyr		
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Ala	Glu	Glu	Phe	Arg	Ile	Leu	Ser	Leu	Glu	Leu	Leu	Asp	His	Cys	Tyr		
	850					855					860						
His	Val	Asp	Asp	Ala	Gln	Thr	Leu	Gln	Leu	Leu	Thr	Tyr	Glu	Leu	Ser		
865					870					875					880		
Asn	Trp	Ser	Asn	Glu	Thr	Cys	Leu	Ala	Leu	Ala	Val	Ile	Val	Asn	Asn		
			885						890					895			
Lys	His	Phe	Leu	Ala	His	Pro	Cys	Cys	Gln	Ile	Leu	Leu	Ala	Asp	Leu		
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Trp	His	Gly	Gly	Leu	Arg	Met	Arg	Thr	His	Ser	Asn	Ile	Lys	Val	Val		
		915					920					925					
Leu	Gly	Leu	Ile	Cys	Pro	Pro	Phe	Ile	Gln	Met	Leu	Glu	Phe	Lys	Thr		
	930					935					940						
Arg	Glu	Glu	Leu	Leu	Asn	Gln	Pro	Gln	Thr	Ala	Ala	Glu	His	Gln	Asn		
945					950					955					960		

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1400	1405	1410
Met Glu Tyr Glu Ser Thr	Pro Phe Leu Pro Pro	Pro Leu Thr Pro
1415	1420	1425
Leu Tyr His Gly Val Leu	Ile Leu Gln Phe Val	Arg Thr Arg Leu
1430	1435	1440
Ser Cys Ser Lys Ser Gln	Glu Arg Asn Pro Ile	Leu Leu Leu Lys
1445	1450	1455
Ile Ala Glu Leu Phe Leu	Asp Asn Asp Gln Ile	Glu Lys Leu His
1460	1465	1470
Asp Phe Glu Glu Asp Cys	Met Glu Asp Leu Ala	Arg Gln Lys Leu
1475	1480	1485
Asn Glu Lys Asn Thr Ser	Asn Glu Gln Arg Ile	Leu Arg Ala Asp
1490	1495	1500
Ile Arg Thr Asp Gln Ile	Leu Asn Arg Leu Ile	Asp Leu Gln Ala
1505	1510	1515
Lys Glu Ser Met Gly Arg	Asp Val Ile Asn Asp	Val Glu Ser Arg
1520	1525	1530
Leu Ala Ser Val Glu Lys	Ala Gln Asn Glu Ile	Leu Glu Cys Val
1535	1540	1545
Arg Ala Leu Leu Asn Gln	Asn Asn Ala Pro Thr	Ala Ile Gly Arg
1550	1555	1560
Cys Phe Ser Pro Ser Pro	Asp Pro Leu Val Glu	Thr Ala Asn Gly
1565	1570	1575
Thr Pro Gly Pro Leu Leu	Leu Lys Leu Pro Gly	Thr Asp Pro Ile
1580	1585	1590
Leu Glu Glu Lys Asp His	Asp Ser Gly Glu Asn	Ser Asn Ser Leu
1595	1600	1605
Pro Pro Gly Arg Ile Arg	Arg Asn Arg Thr Ala	Thr Ile Cys Gly
1610	1615	1620
Gly Tyr Val Ser Glu Glu	Arg Asn Met Met Leu	Leu Ser Pro Lys
1625	1630	1635
Pro Ser Asp Val Ser Gly	Ile Pro Gln Gln Arg	Leu Met Ser Val
1640	1645	1650
Thr Ser Met Asp Pro Leu	Pro Leu Pro Leu Ala	Lys Leu Ser Thr
1655	1660	1665
Met Ser Ile Arg Arg Arg	His Glu Glu Tyr Thr	Ser Ile Thr Asp
1670	1675	1680
Ser Ile Ala Ile Arg His	Pro Glu Arg Arg Ile	Arg Asn Asn Arg
1685	1690	1695
Ser Asn Ser Ser Glu His	Asp Glu Ser Ala Val	Asp Ser Glu Gly
1700	1705	1710
Gly Gly Asn Val Thr Ser	Ser Pro Arg Lys Arg	Ser Thr Arg Asp
1715	1720	1725
Leu Arg Met Thr Pro Ser	Ser Gln Val Glu Glu	Ser Thr Ser Arg
1730	1735	1740
Asp Gln Ile Phe Glu Ile	Asp His Pro Glu His	Glu Glu Asp Glu
1745	1750	1755
Ala Gln Ala Asp Cys Glu	Leu Thr Asp Val Ile	Thr Glu Glu Glu
1760	1765	1770
Asp Glu Glu Glu Asp Asp	Glu Glu Asp Asp Ser	His Glu Arg His
1775	1780	1785
His Ile His Pro Arg Arg	Lys Ser Ser Arg Gln	Asn Arg Gln Pro
1790	1795	1800
Ser His Thr Leu Glu Thr	Asp Leu Ser Glu Gly	Glu Glu Val Asp
1805	1810	1815
Pro Leu Asp Val Leu Lys	Met Lys Glu Leu Pro	Ile Ile His Gln
1820	1825	1830
Ile Leu Asn Glu Glu Glu	Gln Ala Gly Ala Pro	His Ser Thr Pro
1835	1840	1845

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Val Ile Ala Ser Pro Ser Ser Ser Arg Ala Asp Leu Thr Ser Gln  
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 Lys Cys Ser Asp Val  
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 <211> 489  
 <212> DNA  
 <213> Mus musculus

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 ggctgcaggc cgcgagggtg gaggaggagc cgctgccctt ccggagtcg ccccgtagg 180  
 agaatgtccc agaaatcctg gatagagagc actttgacca agagggagtg tgtatatatt 240  
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 gtcagatggt tctgtggtcg tttggtcaag caacatgcat gctttactgc aagtcttgcc 360  
 atgaaatact cagatgtgaa attgggtgaa cactttaacc aggcaataga agaatggtct 420  
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 ggttctcat 489

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 35 40 45  
 Lys Gln His Ala Cys Phe Thr Ala Ser Leu Ala Met Lys Tyr Ser Asp  
 50 55 60  
 Val Lys Leu Gly Glu His Phe Asn Gln Ala Ile Glu Glu Trp Ser Val  
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 Glu Lys His Thr Glu Gln Ser Pro Thr Asp Ala Tyr Gly Val Ile Asn  
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 Phe Gln Gly Gly Ser His  
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 gacgtgttct tcttcctctt cttcctcggc gtgtggctgg tagctatggg ttggggccacg 360  
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 Gln Cys Asp Leu Val Ala Leu Thr Cys Phe Leu Leu Gly Val Gly Cys  
 35 40 45  
 Arg Leu Thr Pro Gly Leu Tyr His Leu Gly Arg Thr Val Leu Cys Ile  
 50 55 60  
 Asp Phe Met Val Phe Thr Val Arg Leu Leu His Ile Phe Thr Val Asn  
 65 70 75 80  
 Lys Gln Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met Met Lys Asp  
 85 90 95  
 Val Phe Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Met Gly  
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 Ile Leu Xaa  
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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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tggatttact	gactgtcaca	gaacttccat	tctgttcat	tcaaaacgag	aaaagatcag	300
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&lt;210&gt; 21

&lt;211&gt; 415

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 21

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tgTTaactaa	cctctttccc	cactgaaata	acttttttca	ataacatgat	tttaacaaca	360
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&lt;210&gt; 22

&lt;211&gt; 405

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 22

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gggtcacttt	tgaaagagtg	gagcagatga	gcattcagat	taaagaagtt	ggagatcgtg	300
tcaactacat	aaaaagatca	ttacagtctt	tagattctca	aattgggtcat	ctgcaagatc	360
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&lt;210&gt; 23

&lt;211&gt; 5117

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; Unsure

&lt;222&gt; (2382)..(2382)

&lt;223&gt; a, or c, or g, or t

&lt;220&gt;

&lt;221&gt; Unsure

&lt;222&gt; (4664)..(4664)

&lt;223&gt; a, or c, or g, or t

&lt;220&gt;

&lt;221&gt; Unsure

&lt;222&gt; (4682)..(4682)

&lt;223&gt; a, or c, or g, or t



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 <222> (5071)..(5072)  
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agtattccaa	tgattttggt	cagttggccg	ttgaattatt	agaacagtcc	ttcagacaag	180
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 Leu Lys Leu Ala Val Ser Ser Arg Leu Arg Pro Phe Val Ala His Thr  
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 Cys Thr Gln Met Leu Leu Ser Asp Met Trp Met Gly Arg Leu Asn Met  
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 Arg Lys Asn Ser Trp Tyr Lys Val Ile Leu Ser Ile Leu Val Pro Pro  
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 Met Lys Ser Lys Lys Leu Pro Ile Thr Arg Lys Phe Tyr Ala Phe Tyr  
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 His Ala Pro Ile Val Lys Phe Trp Phe Asn Thr Leu Ala Tyr Leu Gly  
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 Gly Lys Met Val Ala Asn Met Phe Tyr Ile Val Val Ile Met Ala Leu  
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Tyr His Glu Lys Pro Val Leu Pro Pro Pro Leu Ile Ile Leu Ser His					
	485		490		495
Ile Val Ser Leu Phe Cys Cys Ile Cys Lys Arg Arg Lys Lys Asp Lys					
	500		505		510
Thr Ser Asp Gly Pro Lys Leu Phe Leu Thr Glu Glu Asp Gln Lys Lys					
	515		520		525
Leu His Asp Phe Glu Glu Gln Cys Val Glu Met Tyr Phe Asn Glu Lys					
	530		535		540
Asp Asp Lys Phe His Ser Gly Ser Glu Glu Arg Ile Arg Val Thr Phe					
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Glu Arg Val Glu Gln Met Cys Ile Gln Ile Lys Glu Val Gly Asp Arg					
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Val Asn Tyr Ile Lys Arg Ser Leu Gln Ser Leu Asp Ser Gln Ile Gly					
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His Leu Gln Asp Leu Ser Ala Leu Thr Val Asp Thr Leu Lys Thr Leu					
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Thr Ala Gln Lys Ala Ser Glu Ala Ser Lys Val His Asn Glu Ile Thr					
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Arg Glu Leu Ser Ile Ser Lys His Leu Ala Gln Asn Leu Ile Asp Asp					
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Gly Pro Val Arg Pro Ser Val Trp Lys Lys His Gly Val Val Asn Thr					
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Leu Ser Ser Ser Leu Pro Gln Gly Asp Leu Glu Ser Asn Asn Pro Phe					
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His Cys Asn Ile Leu Met Lys Asp Asp Lys Asp Pro Gln Cys Asn Ile					
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Phe Gly Gln Asp Leu Pro Ala Val Pro Gln Arg Lys Glu Phe Asn Phe					
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Pro Glu Ala Gly Ser Ser Ser Gly Ala Leu Phe Pro Ser Ala Val Ser					
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Pro Pro Glu Leu Arg Gln Arg Leu His Gly Val Glu Leu Leu Lys Ile					
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Phe Asn Lys Asn Gln Lys Leu Gly Ser Ser Ser Thr Ser Ile Pro His					
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Leu Ser Ser Pro Pro Thr Lys Phe Phe Val Ser Thr Pro Ser Gln Pro					
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Ser Cys Lys Ser His Leu Glu Thr Gly Thr Lys Asp Gln Glu Thr Val					
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Cys Ser Lys Ala Thr Glu Gly Asp Asn Xaa Glu Phe Gly Ala Phe Val					
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Gly His Arg Asp Ser Met Asp Leu Gln Arg Phe Lys Glu Thr Ser Asn					
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Lys Ile Lys Ile Leu Ser Asn Asn Asn Thr Ser Glu Asn Thr Leu Lys					
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Arg Val Ser Ser Leu Ala Gly Phe Thr Asp Cys His Arg Thr Ser Ile					
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Leu Asn Gly Leu Thr Ser Pro Phe Lys Pro Ala Met Asp Thr Asn Tyr					
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Tyr Tyr Ser Ala Val Glu Arg Asn Asn Leu Met Arg Leu Ser Gln Ser					
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Tyr Phe Trp Glu Met Gly Ser Asn Ala Val Ser Ser Ala Leu Gly Ala
35          40          45
Cys Leu Leu Leu Arg Val Met Ala Arg Leu Glu Pro Asp Ala Glu Glu
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Ala Ala Arg Arg Lys Asp Leu Ala Phe Lys Phe Glu Gly Met Gly Val
65          70          75          80
Asp Leu Phe Gly Glu Cys Tyr Arg Ser Ser Glu Val Arg Ala Ala Arg
85          90          95
Leu Leu Leu Arg Arg Cys Pro Leu Trp Gly Asp Ala Thr Cys Leu Gln
100         105         110
Leu Ala Met Gln Ala Asp Ala Arg Ala Phe Phe Ala Gln Asp Gly Val
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Gln Ser Leu Leu Thr Gln Lys Trp Trp Gly Asp Met Ala Ser Thr Thr

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Glu Leu Glu Phe Asp	Met Asp Ser Val Ile Asn Gly	Glu Gly Pro Val
180	185	190
Gly Thr Ala Asp Pro	Ala Glu Lys Thr Pro Leu Gly	Val Pro Arg Gln
195	200	205
Ser Gly Arg Pro Gly	Cys Cys Gly Gly Arg Cys Gly	Gly Arg Arg Cys
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260	265	270
Leu Tyr Phe Trp Ala	Phe Thr Leu Leu Cys Glu Glu Leu	Arg Gln Gly
275	280	285
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His Ala Ser Leu Ser	Gln Arg Leu Arg Leu Tyr Leu	Ala Asp Ser Trp
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Cys Arg Leu Thr Pro	Gly Leu Tyr His Leu Gly Arg Thr	Val Leu Cys
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Ile Asp Phe Met Val	Phe Thr Val Arg Leu Leu His Ile	Phe Thr Val
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Asn Lys Gln Leu Gly	Pro Lys Ile Val Ile Val Ser Lys	Met Met Lys
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Asp Val Phe Phe Phe	Leu Phe Phe Leu Gly Val Trp Leu	Val Ala Tyr
385	390	395
Gly Val Ala Thr Glu	Gly Leu Leu Arg Pro Arg Asp Ser	Asp Phe Pro
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Ser Ile Leu Arg Arg	Val Phe Tyr Arg Pro Tyr Leu Gln	Ile Phe Gly
420	425	430
Gln Ile Pro Gln Glu	Asp Met Asp Val Ala Leu Met Glu	His Ser Asn
435	440	445
Cys Ser Ser Glu Pro	Gly Phe Trp Ala His Pro Pro Gly	Ala Gln Ala
450	455	460
Gly Thr Cys Val Ser	Gln Tyr Ala Asn Trp Leu Val Val	Leu Leu Leu
465	470	475
Val Ile Phe Leu Leu	Val Ala Asn Ile Leu Leu Val Asn	Leu Leu Ile
485	490	495
Ala Met Phe Ser Tyr	Thr Phe Gly Lys Val Gln Gly Asn	Ser Asp Leu
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Tyr Trp Lys Ala Gln	Arg Tyr Arg Leu Ile Arg Glu Phe	His Ser Arg
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Pro Ala Leu Ala Pro	Pro Phe Ile Val Ile Ser His Leu	Arg Leu Leu
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Leu Arg Gln Leu Cys	Arg Arg Pro Xaa Ser Pro Gln Pro	Ser Ser Pro
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Leu Leu Thr Trp Glu	Ser Val His Lys Glu Asn Phe Leu	Leu Ala Arg
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Ala Arg Asp Lys Arg	Glu Ser Asp Ser Glu Xaa Leu Lys	Arg Thr Ser





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<212> PRT
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Lys Gln His Ala Cys Phe Thr Ala Ser Leu Ala Met Lys Tyr Ser Asp
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Glu Lys His Thr Glu Gln Ser Pro Thr Asp Ala Tyr Gly Val Ile Asn
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Phe Gln Gly Gly Ser His Ser Tyr Arg Ala Lys Tyr Val Arg Leu Ser
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Tyr Asp Thr Lys Pro Glu Val Ile Leu Gln Leu Leu Lys Glu Trp
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Ile Phe Glu Gly Gly Pro Asn Val Ile Leu Thr Val Leu Glu Tyr Leu
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Gln Glu Ser Pro Pro Val Pro Val Val Val Cys Glu Gly Thr Gly Arg
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Ala Ala Asp Leu Leu Ala Tyr Ile His Lys Gln Thr Glu Glu Gly Gly
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Asn Leu Pro Asp Ala Ala Glu Pro Asp Ile Ile Ser Thr Ile Lys Lys
340    345    350
Thr Phe Asn Phe Gly Gln Asn Glu Ala Leu His Leu Phe Gln Thr Leu
355    360    365

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Lys	Gly	Thr	Asn	Ala	Ser	Ala	Phe	Asp	Gln	Leu	Ile	Leu	Thr	Leu	Ala
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Trp	Asp	Arg	Val	Asp	Ile	Ala	Lys	Asn	His	Val	Phe	Val	Tyr	Gly	Gln
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Thr	Arg	Lys	Arg	Phe	Arg	Leu	Ile	Tyr	Asn	Ser	Leu	Gly	Gly	Asn	Asn
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Ser	His	Glu	Ser	Phe	Gly	Asn	Arg	Ala	Asp	Lys	Lys	Glu	Lys	Met	Arg
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Lys	Ile	Tyr	Arg	Ser	Met	Ala	Tyr	Glu	Ala	Lys	Gln	Ser	Asp	Leu	Val
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	675						680					685			
Leu	Ala	Val	Glu	Leu	Leu	Glu	Gln	Ser	Phe	Arg	Gln	Asp	Glu	Thr	Met
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705					710					715					720
Cys	Leu	Lys	Leu	Ala	Val	Ser	Ser	Arg	Leu	Arg	Pro	Phe	Val	Ala	His
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Gln	Tyr	Ile	Ile	Met	Val	Asn	Leu	Leu	Ile	Ala	Phe	Phe	Asn	Asn		
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Lys	Tyr	Asn	Asn	Asn	Asn	Gly	Asp	Glu	Ile	Ile	Pro	Thr	Asn	Thr

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1760	Asn Leu Thr Asp Pro	1765	Val Ile Lys Ala Glu	1770	Glu Lys Arg Ser
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<212> PRT
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Thr Leu Cys Gln Cys Gly Arg Pro Arg Thr Ala His Pro Ala Val Ala
35          40          45
Met Glu Asp Ala Phe Gly Ala Ala Val Val Thr Val Trp Asp Ser Asp
50          55          60
Ala His Thr Thr Glu Lys Pro Thr Asp Ala Tyr Gly Glu Leu Asp Phe
65          70          75          80
Thr Gly Ala Gly Arg Lys His Ser Asn Phe Leu Arg Leu Ser Asp Arg
85          90          95
Thr Asp Pro Ala Ala Val Tyr Ser Leu Val Thr Arg Thr Trp Gly Phe
100         105         110
Arg Ala Pro Asn Leu Val Val Ser Val Leu Gly Gly Ser Gly Gly Pro
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Ala Arg Tyr Arg Trp	Arg Gly Asp Pro Glu	Asp Gly Val Gln Phe Pro
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Val Leu Leu Leu Leu	Ile Asp Gly Asp Glu	Lys Met Leu Thr Arg Ile
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Glu Asn Ala Thr Gln	Ala Gln Leu Pro Cys	Leu Leu Val Ala Gly Ser
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Pro Gly Ser Gly Gly	Ala Arg Gln Gly Glu	Ala Arg Asp Arg Ile Arg
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Arg Phe Phe Pro Lys	Gly Asp Leu Glu Val	Leu Gln Ala Gln Val Glu
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Arg Ile Met Thr Arg	Lys Glu Leu Leu Thr	Val Tyr Ser Ser Glu Asp
	355	360
Gly Ser Glu Glu Phe	Glu Thr Ile Val Leu	Lys Ala Leu Val Lys Ala
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Cys Gly Ser Ser Glu	Ala Ser Ala Tyr Leu	Asp Glu Leu Arg Leu Ala
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Asp Ile Gln Trp Arg	Ser Phe His Leu Glu	Ala Ser Leu Met Asp Ala
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	435	440
Leu Ser Leu Gly His	Phe Leu Thr Pro Met	Arg Leu Ala Gln Leu Tyr
	450	455
Ser Ala Ala Pro Ser	Asn Ser Leu Ile Arg	Asn Leu Leu Asp Gln Ala
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Ser His Ser Ala Gly	Thr Lys Ala Pro Ala	Leu Lys Gly Gly Ala Ala
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Glu Leu Arg Pro Pro	Asp Val Gly His Val	Leu Arg Met Leu Leu Gly
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Lys Met Cys Ala Pro	Arg Tyr Pro Ser Gly	Gly Ala Trp Asp Pro His
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Pro Gly Gln Gly Phe	Gly Glu Ser Met Tyr	Leu Leu Ser Asp Lys Ala
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Thr Ser Pro Leu Ser	Leu Asp Ala Gly Leu	Gly Gln Ala Pro Trp Ser
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Tyr Phe Trp Glu Met	Gly Ser Asn Ala Val	Ser Ser Ala Leu Gly Ala
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Cys Leu Leu Leu Arg	Val Met Ala Arg Leu	Glu Pro Asp Ala Glu Glu
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		605

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Ser	Asp	Leu	Tyr	Trp	Lys	Ala	Gln	Arg	Tyr	Arg	Leu	Ile	Arg	Glu	
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Phe	His	Ser	Arg	Pro	Ala	Leu	Ala	Pro	Pro	Phe	Ile	Val	Ile	Ser	

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His Leu Arg Leu Leu Leu	Arg Gln Leu Cys Arg	Arg Pro Arg Ser
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Pro Gln Pro Ser Ser Pro	Ala Leu Glu His Phe	Arg Val Tyr Leu
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Ser Lys Glu Ala Glu Arg	Lys Leu Leu Thr Trp	Glu Ser Val His
1115	1120	1125
Lys Glu Asn Phe Leu Leu	Ala Arg Ala Arg Asp	Lys Arg Glu Ser
1130	1135	1140
Asp Ser Glu Arg Leu Lys	Arg Thr Ser Gln Lys	Val Asp Leu Ala
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Leu Lys Gln Leu Gly His	Ile Arg Glu Tyr Glu	Gln Arg Leu Lys
1160	1165	1170
Val Leu Glu Arg Glu Val	Gln Gln Cys Ser Arg	Val Leu Gly Trp
1175	1180	1185
Val Ala Glu Ala Leu Ser	Arg Ser Ala Leu Leu	Pro Pro Gly Gly
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Pro Pro Pro Pro Asp Leu	Pro Gly Ser Lys Asp	
1205	1210	

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 <211> 4646  
 <212> DNA  
 <213> Homo sapiens

<400> 31

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&lt;210&gt; 32

&lt;211&gt; 1104

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 32

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Thr Leu Asp Ser Thr Arg Thr Leu Tyr Ser Ser Ala Ser Arg Ser Thr
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Asp Leu Ser Tyr Ser Glu Ser Asp Leu Val Asn Phe Ile Gln Ala Asn
35          40          45
Phe Lys Lys Arg Glu Cys Val Phe Phe Thr Lys Asp Ser Lys Ala Thr

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Glu Asn Val Cys Lys	Cys Gly Tyr Ala Gln Ser	Gln His Met Glu Gly			
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Thr Gln Ile Asn Gln Ser	Glu Lys Trp Asn Tyr Lys Lys His Thr Lys				
	85	90	95		
Glu Phe Pro Thr Asp Ala Phe Gly Asp	Ile Gln Phe Glu Thr Leu Gly				
	100	105	110		
Lys Lys Gly Lys Tyr Ile Arg Leu Ser	Cys Asp Thr Asp Ala Glu Ile				
	115	120	125		
Leu Tyr Glu Leu Leu Thr Gln His Trp	His Leu Lys Thr Pro Asn Leu				
	130	135	140		
Val Ile Ser Val Thr Gly Gly Ala Lys Asn	Phe Ala Leu Lys Pro Arg				
145	150	155	160		
Met Arg Lys Ile Phe Ser Arg Leu Ile Tyr	Ile Ala Gln Ser Lys Gly				
	165	170	175		
Ala Trp Ile Leu Thr Gly Gly Thr His Tyr	Gly Leu Met Lys Tyr Ile				
	180	185	190		
Gly Glu Val Val Arg Asp Asn Thr Ile Ser	Arg Ser Ser Glu Glu Asn				
	195	200	205		
Ile Val Ala Ile Gly Ile Ala Ala Trp Gly	Met Val Ser Asn Arg Asp				
	210	215	220		
Thr Leu Ile Arg Asn Cys Asp Ala Glu Gly Tyr	Phe Leu Ala Gln Tyr				
225	230	235	240		
Leu Met Asp Asp Phe Thr Arg Asp Pro Leu	Cys Ile Leu Asp Asn Asn				
	245	250	255		
His Thr His Leu Leu Leu Val Asp Asn Gly	Cys His Gly His Pro Thr				
	260	265	270		
Val Glu Ala Lys Leu Arg Asn Gln Leu Glu	Lys Tyr Ile Ser Glu Arg				
	275	280	285		
Thr Ile Gln Asp Ser Asn Tyr Gly Gly Lys	Ile Pro Ile Val Cys Phe				
	290	295	300		
Ala Gln Gly Gly Gly Lys Glu Thr Leu Lys	Ala Ile Asn Thr Ser Ile				
305	310	315	320		
Lys Asn Lys Ile Pro Cys Val Val Val Glu	Gly Ser Gly Gln Ile Ala				
	325	330	335		
Asp Val Ile Ala Ser Leu Val Glu Val Glu	Asp Ala Leu Thr Ser Ser				
	340	345	350		
Ala Val Lys Glu Lys Leu Val Arg Phe Leu	Pro Arg Thr Val Ser Arg				
	355	360	365		
Leu Pro Glu Glu Glu Thr Glu Ser Trp Ile	Lys Trp Leu Lys Glu Ile				
	370	375	380		
Leu Glu Cys Ser His Leu Leu Thr Val Ile	Lys Met Glu Glu Ala Gly				
385	390	395	400		
Asp Glu Ile Val Ser Asn Ala Ile Ser Tyr	Ala Leu Tyr Lys Ala Phe				
	405	410	415		
Ser Thr Ser Glu Gln Asp Lys Asp Asn Trp	Asn Gly Gln Leu Lys Leu				
	420	425	430		
Leu Leu Glu Trp Asn Gln Leu Asp Leu Ala	Asn Asp Glu Ile Phe Thr				
	435	440	445		
Asn Asp Arg Arg Trp Glu Ser Ala Asp Leu	Gln Glu Val Met Phe Thr				
	450	455	460		
Ala Leu Ile Lys Asp Arg Pro Lys Phe Val	Arg Leu Phe Leu Glu Asn				
465	470	475	480		
Gly Leu Asn Leu Arg Lys Phe Leu Thr His	Asp Val Leu Thr Glu Leu				
	485	490	495		
Phe Ser Asn His Phe Ser Thr Leu Val Tyr	Arg Asn Leu Gln Ile Ala				
	500	505	510		
Lys Asn Ser Tyr Asn Asp Ala Leu Leu Thr	Phe Val Trp Lys Leu Val				
	515	520	525		

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Ala	Asn	Phe	Arg	Arg	Gly	Phe	Arg	Lys	Glu	Asp	Arg	Asn	Gly	Arg	Asp
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Glu	Met	Asp	Ile	Glu	Leu	His	Asp	Val	Ser	Pro	Ile	Thr	Arg	His	Pro
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Leu	Gln	Ala	Leu	Phe	Ile	Trp	Ala	Ile	Leu	Gln	Asn	Lys	Lys	Glu	Leu
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Ser	Lys	Val	Ile	Trp	Glu	Gln	Thr	Arg	Gly	Cys	Thr	Leu	Ala	Ala	Leu
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Gly	Ala	Ser	Lys	Leu	Leu	Lys	Thr	Leu	Ala	Lys	Val	Lys	Asn	Asp	Ile
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Asn	Ala	Ala	Gly	Glu	Ser	Glu	Glu	Leu	Ala	Asn	Glu	Tyr	Glu	Thr	Arg
	610					615					620				
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Glu	Gln	Leu	Leu	Val	Tyr	Ser	Cys	Glu	Ala	Trp	Gly	Gly	Ser	Asn	Cys
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Leu	Glu	Leu	Ala	Val	Glu	Ala	Thr	Asp	Gln	His	Phe	Ile	Ala	Gln	Pro
			660					665					670		
Gly	Val	Gln	Asn	Phe	Leu	Ser	Lys	Gln	Trp	Tyr	Gly	Glu	Ile	Ser	Arg
		675					680					685			
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690					695						700				
Val	Gly	Cys	Gly	Phe	Val	Ser	Phe	Arg	Lys	Lys	Pro	Val	Asp	Lys	His
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Lys	Lys	Leu	Leu	Trp	Tyr	Tyr	Val	Ala	Phe	Phe	Thr	Ser	Pro	Phe	Val
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Val	Phe	Ser	Trp	Asn	Val	Val	Phe	Tyr	Ile	Ala	Phe	Leu	Leu	Leu	Phe
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Ala	Tyr	Val	Leu	Leu	Met	Asp	Phe	His	Ser	Val	Pro	His	Pro	Pro	Glu
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Leu	Val	Leu	Tyr	Ser	Leu	Val	Phe	Val	Leu	Phe	Cys	Asp	Glu	Val	Arg
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Gln	Trp	Tyr	Val	Asn	Gly	Val	Asn	Tyr	Phe	Thr	Asp	Leu	Trp	Asn	Val
785					790					795					800
Met	Asp	Thr	Leu	Gly	Leu	Phe	Tyr	Phe	Ile	Ala	Gly	Ile	Val	Phe	Arg
				805					810					815	
Leu	His	Ser	Ser	Asn	Lys	Ser	Ser	Leu	Tyr	Ser	Gly	Arg	Val	Ile	Phe
			820					825					830		
Cys	Leu	Asp	Tyr	Ile	Ile	Phe	Thr	Leu	Arg	Leu	Ile	His	Ile	Phe	Thr
		835					840					845			
Val	Ser	Arg	Asn	Leu	Gly	Pro	Lys	Ile	Ile	Met	Leu	Gln	Arg	Met	Leu
	850					855					860				
Ile	Asp	Val	Phe	Phe	Phe	Leu	Phe	Leu	Phe	Ala	Val	Trp	Met	Val	Ala
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Gly	Gln	Val	Pro	Ser	Asp	Val	Asp	Gly	Thr	Thr	Tyr	Asp	Phe	Ala	His
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Cys	Thr	Phe	Thr	Gly	Asn	Glu	Ser	Lys	Pro	Leu	Cys	Val	Glu	Leu	Asp
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Cys	Ile	Tyr	Met	Leu	Ser	Thr	Asn	Ile	Leu	Leu	Val	Asn	Leu	Leu	Val
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B1  
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